



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/997,655	11/29/2001	Wataru Kawasaki	FUJR 19.202	7390
7590 ROSEMAN & COLIN LLP LINDA S. CHAN 575 MADISON AVENUE IP DEPARTMENT 15TH FL. NEWYORK, NY 10022-2585			EXAMINER TORRES, JUAN A	
			ART UNIT 2611	PAPER NUMBER
			MAIL DATE 08/14/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

09/997,655

Applicant(s)

KWASAKI ET AL.

Examiner

Juan A. Torres

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 14-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12, 14 and 15 is/are rejected.
- 7) ☒ Claim(s) 16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Arguments*

#### Regarding claims 1, 14 and 15:

Applicant's arguments filed on 07/18/2007 have been fully considered but they are not persuasive.

The Applicant contends, "Thus, even assuming, arguendo, that it would have been obvious to one skilled in the art at the time the claimed invention to combine these references, such a combination would still have failed to disclose or suggest, "[a] transmission device performing a signal regeneration control, comprising: a clock timing extraction circuit dynamically setting a frequency-dividing ratio based on a transmission rate of an input signal to perform a phase synchronization control so that the input signal and an oscillation output have a constant phase difference and extracting a clock timing based on the transmission rate; and a regeneration control circuit sequentially sweeping a voltage threshold level and a phase of an extracted clock with respect to the input signal to determine whether signal logic levels measured at adjacent monitor points match with each other and to automatically measure a decision point within a valid zone of an eye pattern at which there is the least possibility that error occurs and performing the regeneration control by using the decision point as an optimal point, wherein the regeneration control circuit performs said sweeping of the voltage threshold level and the phase of the extracted clock at intervals derived from a target error rate and a cycle period of the input signal," as recited in claim 1. (Emphasis added)"

The Examiner disagrees and asserts, that, Solheim discloses that the regeneration control circuit performs the sweeping of the voltage threshold level and the phase of the extracted clock at intervals derived from a target error rate and a cycle period of the input signal (column 6 lines 40-46). Specifically Solheim discloses "FIG. 4A is a flow chart of the operation of the control circuit in the error mapping mode. After control circuit 16 assumes the error mapping mode of operation, as shown in step 100, the threshold  $V_{th}$  and the phase  $\Phi$  are initialized for BER contour mapping in step 101.  $T_{prov}$  defines the sampling time for measuring the current raw BER. Alternatively, rather than measuring the true current  $BER_{raw}$ , a shorter time interval  $T_{prov}$  may be set for limiting the collection time for each pair  $(V_i, \Phi_j)$ .  $T_{prov}$  should be selected long enough to obtain a raw BER which is below the maximum admissible error rate  $BER_{prov}$ . Steps 102 to 108 illustrate the mapping process, wherein the slicing level  $V_i$  takes (I) successive values, and the phase  $\Phi_j$  takes (J) successive values. In the example shown in FIG. 2,  $I=10$  and  $J=16$ . All pairs  $(V_i, \Phi_j)$  are applied to the comparator 10 and flip-flop 12, respectively, in step 102, and the current raw BER is measured in step 103 for the time interval  $T_{prov}$ , as illustrated in step 104" (emphasis added).

From the Examiner point of view, it is clear that there are four variables the pair  $(V_i, \Phi_j)$ , the BER and the time used to measure the BER, the time interval  $T_{prov}$ . This is also very clear in the abstract "To prepare a BER map, the data regenerator operates in an error mapping mode, wherein the incoming signal is decoded using a slicing level  $V_i$  and a phase shifted clock signal  $\Phi_j$ . Each value  $BER_{ij}$  is measured over a preset period of time  $T_{prov}$  for a pair  $V_i, \Phi_j$  and stored in a memory. The BER maps may be prepared

Art Unit: 2611

once a day or at any other suitable interval. In the optimization mode, the operation point for the regenerator is calculated for a BER contour corresponding to the provisioned  $BER_{prov}$ , for determining the coordinates  $V_{opt}$ , and  $\Phi_{opt}$  “

Any person skill in the art to working with Montecarlo methods to obtain BER knows that the time needed to obtain useful data is long, a good measurement for only  $BER=10^{-6}$  can take several days in a good computer, this is the reason why the measurements are done once a day. A good measurement of BER should count 100 errors.

The new limitation added is that the BER depends on the “cycle period of the input” signal, this feature is inherent to the measurement of the BER, and it is easy to understand why, let suppose that the cycle of the input signal is 1 cycle per second (very slow) the receiver receives one cycle of the input signal every second, so to know that the BER is less or equal to  $10^{-6}$ , the receiver has to receive one million of cycles to see that there are not errors, then the BER is below  $10^{-6}$ . this will take one million seconds (so it will take  $1,000,000/60/60/24=$  11.6 days to verify with  $T_{prov}$  that the BER is below  $10^{-6}$ ). Now suppose that the cycle of the input signal is 1 Giga cycle per second (fast) the receiver receives  $10^6$  cycles of the input signal every second, so to know that the BER is less or equal to  $10^{-6}$ , the receiver has to receive one million of cycles to see that there are not errors, then the BER is below  $10^{-6}$  this will take one second.

This is disclosed as in the specification as “ $T_{prov}$  defines the sampling time for measuring the current raw BER. Alternatively, rather than measuring the true current  $BER_{raw}$ , a shorter time interval  $T_{prov}$  may be set for limiting the collection time for each

Art Unit: 2611

pair  $(V_i, \Phi_j)$ .  $T_{prov}$  should be selected long enough to obtain a raw BER which is below the maximum admissible error rate  $BER_{prov}$ .

For these reasons and the reason stated en the previous Office action, the rejection of claims 1, 14 and 15 are maintained.

Regarding claims 2-12:

Applicant's arguments filed on 03/15/2007 have been fully considered but they are not persuasive.

The Applicant contends, "Accordingly, Applicants respectfully submit that claim 1, together with claims 2, 5-12, and 16 dependent therefrom, is patentable over Solheim et al., Wada, and Turney, separately and in combination, for at least the foregoing reasons".

The Examiner disagrees and asserts, that, because the rejection of claim 1 is maintained, the rejections of claims 2-12 are also maintained.

For these reasons and the reason stated en the previous Office action, the rejection of claims 2-12 are maintained.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 5-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Solheim (US 5896391) in view of Turney (US 4516083 A), and further in view of Wada (US 5602879 A).

As per claim 1, Solheim discloses a regeneration control circuit sequentially sweeping a voltage threshold level and a phase of an extracted clock with respect to the input signal (figure 3 column 5 line 25 to column 6 line 35); and that the regeneration control circuit performs the sweeping of the voltage threshold level and the phase of the extracted clock at intervals derived from a target error rate and a cycle period of the input signal (column 6 lines 40-46. See response to arguments above). Solheim doesn't disclose a clock timing extraction circuit dynamically setting a frequency-dividing ratio based on a transmission rate of an input signal to perform a phase synchronization control so that the input signal and an oscillation output have a constant phase difference and extracting a clock timing based on the transmission rate; and determine whether signal logic levels measured at adjacent monitor points match with each other and to automatically measure a decision point within a valid zone of an eye pattern at which there is the least possibility that error occurs and performing the regeneration control by using the decision point as an optimal point. Turney discloses a clock timing extraction circuit dynamically setting a frequency-dividing ratio based on a transmission rate of an input signal to perform a phase synchronization control so that the input signal and an oscillation output have a constant phase difference and extracting a clock timing based on the transmission rate (figure 1 column 2 line 41 to column 3 line 35). Solheim and Turney are analogous art because they are from the same field of

Art Unit: 2611

endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate the clock timing extraction circuit disclosed by Turney with the regeneration control circuit disclosed by Solheim. The suggestion/motivation for doing so would have been to reducing time delay in the synthesizer (Turney column 3 lines 18-28). Wada discloses determining whether signal logic levels measured at adjacent monitor points match with each other and to automatically measure a decision point within a valid zone of an eye pattern at which there is the least possibility that error occurs and performing the regeneration control by using the decision point as an optimal point (figures 7-10, column 10 lines 14-39). Solheim and Wada are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate the clock recovery circuit disclosed by Wada with the regeneration control circuit disclosed by Solheim. The suggestion/motivation for doing so would have been to produce a timing clock signal at a point at which an eye pattern of the signal opens most widely (Wada abstract).

As per claim 2, Solheim, Turney and Wada disclose claim 1, Turney also discloses that the clock timing extraction circuit comprises a phase comparing means for comparing phases of the input signal and a frequency-divided clock to detect a phase difference therebetween (figure 1 block 12 column 2 line 41 to column 3 line 35); averaging means for averaging the phase difference to generate a control voltage (figure 1 block 16 column 2 line 41 to column 3 line 35); voltage-controlled oscillation means for oscillating a synchronizing clock based on the control voltage (figure 1 block



Art Unit: 2611

18 column 2 line 41 to column 3 line 35); frequency-dividing means for dividing the frequency of the synchronizing clock to generate the frequency-divided clock (figure 1 block 14 column 2 line 41 to column 3 line 35); and phase-locked loop control means for determining whether the control voltage falls within a set range to determine whether a phase-locked loop is in a locked state and dynamically setting the frequency-dividing ratio based on a result of determination (figure 1 block 26 column 2 line 41 to column 3 line 35). Solheim and Turney are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate the clock timing extraction circuit disclosed by Turney with the regeneration control circuit disclosed by Solheim. The suggestion/motivation for doing so would have been to reducing time delay in the synthesizer (Turney column 3 lines 18-28).

As per claim 5, Solheim, Turney and Wada disclose claim 1, Solheim also discloses that the regeneration control circuit comprises a voltage threshold level setting means for making a decision on the input signal by using the voltage threshold level and generating measured data from the input signal (figure 3 block 16 output 13 column 6 lines 5-17); clock phase setting means for setting a phase of the clock (figure 3 block 14 column 5 lines 48-54); level decision control means (figure 3 block 16 column 6 lines 5-17); decision information hold means for holding the decision information (figure 3 block 18 column 6 lines 5-17); and optimal point setting means for identifying a decision point within the valid zone of the eye pattern at which there is the least possibility that error occurs from the decision information obtained by sequentially sweeping the voltage

Art Unit: 2611

threshold level and the extracted phase of clock and performing the regeneration control in which the decision point thus identified is used as the optimal point (figure 2 and figure 3 block 16 column 5 lines 55-62). Solheim doesn't specifically disclose determining whether signal logic levels of the measured data at the adjacent monitor points match with each other and providing the result of said determination as decision information. Wada discloses determining whether signal logic levels of the measured data at the adjacent monitor points match with each other and providing the result of said determination as decision information (figures 7-10, column 10 lines 14-39). Solheim and Wada are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate the clock recovery circuit disclosed by Wada with the regeneration control circuit disclosed by Solheim. The suggestion/motivation for doing so would have been to produce a timing clock signal at a point at which an eye pattern of the signal opens most widely (Wada abstract).

As per claim 6, Solheim, Turney and Wada disclose claim 5, Solheim also discloses that the level decision control means pulls in phase a first output of the measured data triggered by a current clock and a second output of the measured data triggered by a delayed clock obtained by delaying the current clock by a fixed time, makes an exclusive-OR operation on the first and second outputs to make a level decision on the monitor point and generates the decision information (figure 4 blocks 101-102 column 6 lines 36-53).

As per claim 7, Solheim, Turney and Wada disclose claim 5, Solheim also discloses that the optimal point setting means applies an offset adjustment control to the clock timing extraction circuit when a maximum transmission rate of the input signal is equal to the rate of the synchronizing clock to thereby generate a through clock, the clock phase setting means selects the through clock to sweep the clock phase (figure 3 column 5 lines 40-54).

As per claim 8, Solheim, Turney and Wada disclose claim 5, Solheim also discloses that the optimal point setting means applies a count value control and a digital phase step control to the clock phase setting means when the transmission rate of the input signal is lower than that of the synchronizing clock to thereby generate a clock signal having a different frequency-dividing ratio, and applies an offset adjustment control to the clock timing extraction circuit to thereby generate a frequency-divided signal based on the clock signal, the clock phase setting means selects the frequency-divided clock to sweep the clock phase (figure 3 column 6 lines 5-17).

As per claim 9, Solheim, Turney and Wada disclose claim 5, Solheim also discloses that the optimal point setting means sets a reset cycle based on an error rate corresponding to the transmission rate of the input signal, and resets the decision information held in the decision information holding means on the basis of the reset cycle (figure 2 and figure 3 column 6 lines 18-26).

As per claim 10, Solheim, Turney and Wada disclose claim 9, Solheim also discloses that the optimal point setting means controls to shift a next monitor point

without waiting for the reset cycle when recognizing that the decision information is indicative of error (figure 2 and figure 3 column 6 lines 36-53).

As per claim 11, Solheim, Turney and Wada disclose claim 5, Solheim also discloses that the optimal point setting means comprises a memory for memorizing the decision information about the monitor points, and determines, as the optimal point, a monitor point located in a memory area in which there is the least error with respect to the voltage threshold level and the clock phase (figure 3 block 18 column 6 lines 5-18).

As per claim 12, Solheim, Turney and Wada disclose claim 11, Solheim also discloses that the optimal point setting means memorizes the voltage threshold level and the clock phase at the monitor point determined as the optimal point, and performs the regeneration control using the memorized voltage threshold level and the clock phase at the time of restart (figure 3 column 6 lines 5-26).

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Solheim, Turney and Wada as applied to claim 2 above, and further in view of Nakamura (US 6741668). Solheim, Turney and Wada disclose claim 2. Solheim, Turney and Wada don't specifically disclose that the phase comparing means makes an exclusive-OR operation on a level of a rising edge of the frequency-divided clock and that of a falling edge thereof so that the phase difference is detected as a duty ratio. Nakamura discloses that the phase comparing means makes an exclusive-OR operation on a level of a rising edge of the frequency-divided clock and that of a falling edge thereof so that the phase difference is detected as a duty ratio (figure 7 column 3 line 37 to column 4 line 6 and column 13 lines 1-65). Solheim, Turney, Wada and Nakamura are analogous

Art Unit: 2611

art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate the exclusive-or operation circuit disclosed by Nakamura with the regeneration control circuit disclosed by Solheim, Turney and Wada. The suggestion/motivation for doing so would have been to reduce the jitter of the receiver (Nakamura column 2 lines 41-51).

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Solheim, Turney and Wada as applied to claim 2 above, and further in view of Itaya (US 4625180). Solheim, Turney and Wada disclose claim 2. Solheim, Turney and Wada don't specifically disclose that the phase-locked loop control means sets a frequency-dividing ratio available before power off in the frequency-dividing means at the time of power off and sets a control voltage available before breaking of the input signal in the averaging means when the input signal breaks. Itaya discloses that the phase-locked loop control means sets a frequency-dividing ratio available before power off in the frequency-dividing means at the time of power off and sets a control voltage available before breaking of the input signal in the averaging means when the input signal breaks (figure 4 column 5 lines 40-50). Solheim, Turney, Wada and Itaya are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate the power off technique disclosed by Itaya with the regeneration control circuit disclosed by Solheim, Turney and Wada. The suggestion/motivation for doing so would have been to reduce the fluctuations of the phase locked loop the receiver (Itaya abstract).

Art Unit: 2611

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Solheim (US 5896391) in view of Wada (US 5602879 A). Solheim discloses a regeneration control circuit performing a regeneration control of an input signal, comprising a voltage threshold level setting means for making a decision on the input signal by using a voltage threshold level and generating measured data from the input signal (figure 3 block 16 output 13 column 6 lines 5-17); clock phase setting means for setting a phase of a clock for decision making (figure 3 block 14 column 5 lines 48-54); level decision control means (figure 3 block 16 column 6 lines 5-17); decision information hold means for holding the decision information (figure 3 block 18 column 6 lines 5-17); optimal point setting means for identifying a decision point within a valid zone of an eye pattern at which there is the least possibility that error occurs from the decision information obtained by sequentially sweeping the voltage threshold level and the phase of the clock with respect to the input signal and performing the regeneration control in which the decision point thus identified is used as an optimal point (figure 2 and figure 3 block 16 column 5 lines 55-62); and that the regeneration control circuit performs the sweeping of the voltage threshold level and the phase of the extracted clock at intervals derived from a target error rate and a cycle period of the input signal (column 6 lines 40-46. See response to arguments above). Solheim doesn't specifically disclose determining whether signal logic levels of the measured data at the adjacent monitor points match with each other and providing the result of said determination as decision information. Wada discloses determining whether signal logic levels of the measured data at the adjacent monitor points match with each other and providing the result of

Art Unit: 2611

said determination as decision information (figures 7-10, column 10 lines 14-39).

Solheim and Wada are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate the clock recovery circuit disclosed by Wada with the regeneration control circuit disclosed by Solheim. The suggestion/motivation for doing so would have been to produce a timing clock signal at a point at which an eye pattern of the signal opens most widely (Wada abstract).

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Naito (US 6538786) in view of Solheim (US 5896391), further in view of Turney (US 4516083 A) and further in view of Wada (US 5602879 A). Naito discloses an optical receiver receiving a light signal and performing a regeneration control, comprising an opto-electric conversion unit converting the light signal into an electric signal (figure 1 block 31 column 10 lines 40-51); a filtering unit performing a waveform equalizing control of the electric signal (figure 1 block 31 column 10 lines 40-51). Naito doesn't disclose a clock timing extraction unit dynamically setting a frequency-dividing ratio based on a transmission rate of the input signal to perform a phase synchronization control so that there is a fixed phase difference between the input signal and an oscillation output and extracting a clock timing based on the transmission rate; and a regeneration control unit sequentially sweeping a voltage threshold level and phase of the extracted clock with respect to the input signal to determine whether signal logic levels measured at adjacent points match with each other and based thereon finding an optimal point within a valid zone of an eye pattern at which there is the least possibility that error occurs.

Art Unit: 2611

Turney discloses a clock timing extraction unit dynamically setting a frequency-dividing ratio based on a transmission rate of the input signal to perform a phase synchronization control so that there is a fixed phase difference between the input signal and an oscillation output and extracting a clock timing based on the transmission rate (figure 1 block 14 column 2 line 41 to column 3 line 35). Naito and Turney are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate the clock timing extraction circuit disclosed by Turney with the optical communication system disclosed by Naito. The suggestion/motivation for doing so would have been to reducing time delay in the synthesizer (Turney column 3 lines 18-28). Solheim discloses a regeneration control unit sequentially sweeping a voltage threshold level and phase of the extracted clock with respect to the input signal (figure 3 column 5 line 25 to column 6 line 35); and that the regeneration control circuit performs the sweeping of the voltage threshold level and the phase of the extracted clock at intervals derived from a target error rate and a cycle period of the input signal (column 6 lines 40-46. See response to arguments above). Naito, Turney and Solheim are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate the data recovery system disclosed by Solheim with the optical communication system disclosed by Naito and Turney. The suggestion/motivation for doing so would have been to provide an optima operation point (Solheim abstract). Wada discloses determining whether signal logic levels of the measured data at the



Art Unit: 2611

adjacent monitor points match with each other and providing the result of said determination as decision information (figures 7-10, column 10 lines 14-39). Naito, Turney, Solheim and Wada are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate the clock recovery circuit disclosed by Wada with the optical communication system disclosed by Naito, Turney and Solheim. The suggestion/motivation for doing so would have been to produce a timing clock signal at a point at which an eye pattern of the signal opens most widely (Wada abstract).

***Allowable Subject Matter***

Claim 16 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 2611

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juan A. Torres whose telephone number is 571-272-3119. The examiner can normally be reached on 8-6 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Juan Alberto Torres  
07-20-2007

  
MOHAMMED GHAYOUR  
SUPERVISORY PATENT EXAMINER